

## **ABSTRACT**

### **THERMALLY STABLE OXIDIZED BIAS LAYER STRUCTURE FOR MAGNETORESISTIVE MAGNETIC HEAD FOR A HARD DISK DRIVE**

The magnetic head of the present invention includes a magnetoresistive read head

5 element in which a magnetic bias layer is deposited across the surface of the wafer above the free  
magnetic layer. Central portions of the biasing layer that correspond to the read head track width  
are oxidized to essentially remove the magnetic moment of the bias layer material in those  
central locations. An oxygen diffusion barrier layer is then deposited upon the oxidized central  
portions of the biasing layer to prevent diffusion or migration of oxygen from the oxidized  
10 central regions of the biasing layer. An insulation layer, a second magnetic shield layer and  
further structures of the magnetic head are subsequently fabricated.